

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-25. (Cancelled)

Claim 31 26. (Currently Amended): A method for preventing or treating disease in a patient, comprising reactivating the thymus of the patient.

Claim 32 27. (Currently Amended): The method of claim 31 26, wherein the thymus of the patient has been at least in part atrophied before it is reactivated.

Claim 33 28. (Currently Amended): The method of claim 32 27, wherein the patient has a disease that at least in part atrophied the thymus of the patient.

Claim 34 29. (Currently Amended): The method of claim 32 27, wherein the patient has had a treatment of a disease that at least in part atrophied the thymus of the patient.

Claim 35 30. (Currently Amended): The method of claim 34 29, wherein the treatment is immunosuppression, chemotherapy, or radiation treatment.

Claim 36 31. (Currently Amended): The method of claim 32 27, wherein the patient is post-pubertal.

Claim 37 32. (Currently Amended): The method of claim 31 26, further comprising administering cells to the patient, wherein the cells are stem cells, progenitor cells, dendritic cells, or combinations thereof.

Claim 38 33. (Currently Amended): The method of claim 37 32, wherein the stem cells are selected from the group consisting of hematopoietic stem cells, epithelial stem cells, and combinations thereof.

Claim 39 34. (Currently Amended): The method of claim 37 32, wherein the progenitor cells are selected from the group consisting of lymphoid progenitor cells, myeloid progenitor cells, and combinations thereof.

Claim 40 35. (Cancelled)

Claim 41 36. (Currently Amended): The method of claim 38 33, wherein the stem cells are hematopoietic stem cells.

Claim 42 37. (Currently Amended): The method of claim 41 36, wherein the hematopoietic stem cells are CD34+ CD34+.

Claim 43 38. (Currently Amended): The method of claim 41 32, wherein the hematopoietic stem cells are autologous.

Claim 44 39. (Currently Amended): The method of claim 41 32, wherein the hematopoietic stem cells are not autologous.

Claim 45 40. (Currently Amended): The method of claim 41 32, wherein the ~~hematopoietic stem~~ cells are administered when the thymus begins to reactivate.

Claim 46 41. (Currently Amended): The method of claim 31 26, wherein the thymus is reactivated by disruption of sex steroid-mediated signaling to the thymus.

Claim 47 42. (Currently Amended): The method of claim 46 41, further comprising administering cells to the patient, wherein the cells are stem cells, progenitor cells, dendritic cells, or combinations thereof.

Claim 48 43. (Currently Amended): The method of claim 47 42, wherein the stem cells are selected from the group consisting of hematopoietic stem cells, epithelial stem cells, and combinations thereof.

Claim 49 44. (Currently Amended): The method of claim 47 42, wherein the progenitor cells are selected from the group consisting of lymphoid progenitor cells, myeloid progenitor cells, and combinations thereof.

Claim 50 45. (Cancelled)

Claim 51 46. (Currently Amended): The method of claim 48 43, wherein the cells are hematopoietic stem cells.

Claim 52 47. (Currently Amended): The method of claim 51 42, wherein the ~~hematopoietic stem~~ cells are administered at the time disruption of sex steroid-mediated signaling to the thymus is begun.

Claim 53 48. (Currently Amended): The method of claim 46 41, wherein the sex steroid-mediated signaling to the thymus is disrupted by surgical castration.

Claim 54 49. (Currently Amended): The method of claim 46 41, wherein the sex steroid-mediated signaling to the thymus is disrupted by chemical castration.

Claim 55 50. (Currently Amended): The method of claim 46 41, wherein the sex steroid-mediated signaling to the thymus is disrupted by administration of ~~one or more pharmaceuticals~~ a pharmaceutical.

Claim 56 51. (Currently Amended): The method of claim 55 50, wherein the ~~one or more pharmaceuticals~~ pharmaceutical is selected from the group consisting of LHRH agonists, LHRH antagonists, anti-LHRH vaccines, anti-androgens, anti-estrogens, SERMs, SARMs, SPRMs, ERDs, ~~aromatase aromatase~~ inhibitors, anti-progestogens, Dioxalan derivatives, and combinations thereof.

Claim 57 52. (Currently Amended): The method of claim 56 51, wherein the LHRH agonists are selected from the group selected from the group consisting of Eulexin, Goserelin, Leuprolide, Lupron, Dioxalan derivatives, Triptorelin, Meterelin, Buserelin, Histrelin, Nafarelin, Lutrelin, Leuprorelin, Deslorelin, Cystorelin, Decapeptyl, Gonadorelin, and combinations thereof.

Claim 58 53. (Currently Amended): The method of claim 56 51, wherein the LHRH antagonists are selected from the group consisting of Abarelix, Cetrorelix, and combinations thereof.

Claim 59 54. (Currently Amended): The method of claim 31 26, wherein clinical symptoms of the disease are reduced as compared to those symptoms that would have otherwise occurred in a patient prior to thymus reactivation.

Claim 60 55. (Currently Amended): The method of claim 31 26, wherein the disease is caused by an agent selected from the group consisting of viruses, bacteria, fungi, parasites, prions, cancers, allergens, asthma-inducing agents, "self" proteins and antigens which cause autoimmune disease.

Claim 61 56. (Currently Amended): The method of claim 60 55, wherein the agent is a virus.

Claim 62 57. (Currently Amended): The method of claim 61 56, wherein the virus is selected from the group consisting of Retroviridae, Picornaviridae, Calciviridae, Togaviridae, Flaviridae, Coronaviridae, Rhabdoviridae, Filoviridae, Paramyxoviridae, Orthomyxoviridae, Bungaviridae, Arenaviridae, Reoviridae, Birnaviridae, Hepadnaviridae, Parvoviridae, Papovaviridae, Adenoviridae, Herpesviridae, Poxviridae, and Iridoviridae.

Claim 63 58. (Currently Amended): The method of claim 61 56, wherein the virus is selected from the group consisting of influenza virus, human immunodeficiency virus, and herpes simplex virus.

Claim 64 59. (Currently Amended): The method of claim 60 55, wherein the agent is a bacteria bacterium.

Claim 65 60. (Currently Amended): The method of claim 64 59, wherein the ~~bacteria~~ bacterium is selected from the group consisting of *Helicobacter pyloris* *Helicobacter pylori*, *Borelia burgdorferi*, *Legionella pneumophilia*, *Mycobacteria tuberculosis* *Mycobacterium tuberculosis*, *Mycobacteria avium* *Mycobacterium avium*, *Mycobacteria intracellulare* *Mycobacterium intracellulare*, *Mycobacteria kansaii* *Mycobacterium kansaii*, *Mycobacteria gordonaiae* *Mycobacterium gordonaiae*, *Mycobacteria* sporozoites, *Staphylococcus aureus*, *Neisseria gonorrhoeae*, *Neisseria meningitidis*, *Listeria monocytogenes*, *Streptococcus pyogene* *Streptococcus pyogenes*, *Streptococcus agalactiae*, *Streptococcus faecalis*, *Streptococcus bovis*, *Streptococcus pneumoniae*, pathogenic *Campylobacter* sporozoites, *Enterococcus* sporozoites, *Haemophilus influenzae*, *Bacillus antracis* *Bacillus anthracis*, *Corynebacterium diphtheriae*, *Corynebacterium* sporozoites, *Erysipelothrix rhusiopathiae*, *Clostridium perfringens*, *Clostridium tetani*, *Enterobacter aerogenes*, *Klebsiella pneumoniae*, *Pasturella multocida*, *Bacteroides* sporozoites, *Fusobacterium nucleatum*, *Streptobacillus moniliformis*, *Treponema pallidum*, *Treponema pertenue*, *Leptospira*, and *Actinomyces israelli*.

Claim 66 61. (Currently Amended): The method of claim 64 59, wherein the bacteria is a ~~mycobacteria~~ mycobacterium.

Claim 67 62. (Currently Amended): The method of claim 60 55, wherein the agent is a parasite.

Claim 68 63. (Currently Amended): The method of claim 65 60, wherein the parasite is selected from the group consisting of *Plasmodium falciparum*, *Plasmodium yoelli*, and *Toxoplasma gondii*.

Claim 69 64. (Currently Amended): The method of claim 67 62, wherein the parasite is a malaria parasite.

Claim 70 65. (Currently Amended): The method of claim 60 55, wherein the agent is an infectious fungi fungus.

Claim 71 66. (Currently Amended): The method of claim 70 65, wherein the infectious fungi fungus is selected from the group consisting of *Cryptococcus neoformans*, *Histoplasma capsulatum*, *Coccidioides immitis*, *Blastomyces dermatitidis*, *Chlamydia trachomatis*, *Candida albicans*.

Claim 72 67. (Currently Amended): The method of claim 60 55, wherein the agent is a cancer.

Claim 73 68. (Currently Amended): The method of claim 72 67, wherein the cancer is selected from the group consisting of ~~cancers a cancer~~ of the brain, ~~cancers a cancer~~ of the lung, ~~cancers a cancer~~ of the ovary, ~~cancers a cancer~~ of the breast, ~~cancers a cancer~~ of the prostate, ~~cancers a cancer~~ of the colon, and ~~cancers a cancer~~ of the blood, a carcinoma, a melanoma, a sarcoma, and any combination thereof.

Claim 74 69. (Currently Amended): The method of claim 60 55, wherein the agent is an allergen.

Claim 75 70. (Currently Amended): The method of claim 74 69, wherein the allergen causes an allergic condition selected from the group consisting of eczema, allergic

rhinitis, allergic coryza, hay fever, bronchial asthma, urticaria (hives), and food allergies.

Claims 76 71-72. (Cancelled)

Claim 78 73. (Currently Amended): The method of claim 31 26, further comprising administering ~~at least one a cytokine, at least one a growth factor, or a combination of at least one a cytokine and at least one a growth factor~~ to the patient.

Claim 79 74. (Currently Amended): The method of claim 78 73, wherein the cytokine is selected from the group consisting of Interleukin 2 (IL-2), Interleukin 3 (IL-3), Interleukin 4 (IL-4), Interleukin 5 (IL-5), Interleukin 6 (IL-6), Interleukin 7 (IL-7), Interleukin 10 (IL-10), Interleukin 12 (IL-12), Interleukin 15 (IL-15), Interferon gamma (IFN-γ), and any combinations thereof.

Claim 80 75. (Currently Amended): The method of claim 78 73, wherein the growth factor is selected from the group consisting of members a member of the epithelial growth factor family, members a member of the fibroblast growth factor family, stem cell factor, granulocyte colony stimulating factor (G-CSF), keratinocyte growth factor (KGF), insulin-like growth factor-1 (IGF-1), a growth hormone, a thyroid hormone, and any combinations thereof.

Claims 81 76-78. (Cancelled)

Claim 84 79. (Currently Amended): A method for enhancing transplantation of donor hematopoietic stem cells into the thymus of a recipient patient, comprising:

depleting the T cells of the patient, patient;
reactivating the thymus of the patient, patient; and
transplanting donor hematopoietic stem cells to the patient,
wherein uptake of the donor hematopoietic stem cells into the patient's thymus
is enhanced as compared to the uptake that would have otherwise occurred in a patient
prior to thymus reactivation.

Claim 85 80. (Currently Amended): A method for increasing virus-specific peripheral T
cell responsiveness of a patient with an at least partially atrophied thymus, comprising:

reactivating the thymus of the patient, patient;
exposing the patient to a virus, virus; and
determining the virus-specific peripheral T cell responsiveness in the
patient,
wherein the patient has an increased viral-specific peripheral T cell
responsiveness as compared to the responsiveness that would have otherwise occurred
in a patient prior to thymus reactivation.

Claim 81. (New): The method of claim 38, wherein the cells are genetically modified.

Claim 82. (New): The method of claim 41, wherein the sex steroid-mediated signaling
to the thymus is disrupted by lowering the level of a sex steroid hormone.

Claim 83. (New): The method of claim 26, wherein the patient is immunosuppressed.

Claim 84. (New): The method of claim 51, wherein the anti-androgen is Eulexin or
ketoconazole.